

**DRAFT  
ENVIRONMENTAL IMPACT STATEMENT**

**SALMON RIVER CANYON PROJECT**

**OCTOBER 1999**

**Prepared by**

**U.S. Department of Agriculture, Forest Service  
Northern and Intermountain Regions  
Nez Perce, Payette, Bitterroot and Salmon-Challis National Forests**

**Type of Statement:** Draft Environmental Impact Statement

**Proposed Action:** Prescribed Fire

**Lead Agency:** USDA Forest Service

**Abstract:** This Draft Environmental Impact Statement documents the analysis of four action alternatives as well as the no-action alternative for the Salmon River Canyon Project. The Salmon River Canyon Project planning area covers approximately 1,800,000 acres in Central Idaho. A hazard/risk assessment was completed by the Salmon River Canyon Project Planning Team of this area in 1998. The assessment identified those sub-watersheds most likely to experience stand-replacing wildland fire occurring outside the historical range of variability (HRV). This assessment identified 45 percent of the planning area to be at risk to burning outside HRV, with this information and direction from each Forest/District the proposed action was formulated.

The majority of the areas proposed for burning (approximately 80-90 percent) would be a low intensity underburn in ponderosa pine and Douglas-fir forest types. Some higher fire intensities will likely occur on a small portion (10 to 20 percent) of the proposed action areas, due to the variabilities of fuel accumulations and forest structure. The action alternatives range from the Proposed Action alternative of approximately 214,000 acres of prescribed fire to approximately 121,000 acres in alternative E. Implementation of any action alternative would require amendment to the Payette National Forest Plan, due to specific acreage limitations currently in the Plan for prescribed burning in the French Creek, Partridge Creek, Carey Creek and California Creek watersheds.

**Comments:** This Draft EIS is open for public review and comment for 45 days following publication of the notice of availability in the *Federal Register*. Comments should be directed to Bill Shields, Nez Perce National Forest, at the address shown below or be e-mail to: [srcp/r1\\_nezperce@fs.fed.us](mailto:srcp/r1_nezperce@fs.fed.us).

Reviewers should provide their comments during the 45 day review period of the draft environmental impact statement (EIS). This will enable the Forest Service to analyze and respond to the comments at one time and to use information acquired in the preparation of the final EIS, thus avoiding undue delay in the decision making progress. Reviewers have an obligation to structure their participation in the National Environmental policy Act process so that it is meaningful and alerts the agency to the reviewers' position and contentions. Vermont Yankee Nuclear power Corp. v. NRDC, 435 US 519,553, (1978). Environmental objections that could have been raised at the draft stage may be waived if not raised until after completion of the final EIS. City of Angoon v. Hodel (9th Circuit, 1986) and Wisconsin Heritages, Inc. v. Harris, 490 F. Supp. 1334,1338 (E.D. Wis. 1980). Comments on the draft EIS should be specific and should address the adequacy of the statement and the merits of the alternatives discussed (40 CFR 1503.3)

**For further information please contact :** Bill Shields, Nez Perce National Forest  
Route 2, Box 475  
Grangeville, Idaho 83530

208-983-1950

# Salmon River Canyon Project

## Draft EIS Table Of Contents

Cover Sheet with Abstract . . . . .	i
List of Tables and Figures . . . . .	vi
CHAPTER ONE - <i>Purpose and Need For Action</i> . . . . .	1-1
Introduction . . . . .	1-1
Proposed Action . . . . .	1-1
Purpose And Need For The Proposed Action . . . . .	1-2
National Forest And BLM Management Direction . . . . .	1-4
Project Relationship To Interior Columbia Basin Ecosystem Management Project . . . . .	1-6
Decisions To Be Made . . . . .	1-7
Scoping And Public Involvement . . . . .	1-7
Issues . . . . .	1-9
Maps . . . . .	1-15
CHAPTER TWO- <i>Alternatives Including the Proposed Action</i> . . . . .	2-1
Introduction . . . . .	2-1
Alternatives Eliminated From Detailed Study . . . . .	2-1
Descriptions Of Alternatives Considered In Detail . . . . .	2-4
Comparison Of Alternatives . . . . .	2-6
Mitigation And Design Features Common To All Action Alternatives . . . . .	2-9
Monitoring . . . . .	2-12
Maps . . . . .	2-15
CHAPTER THREE - <i>Affected Environment</i> . . . . .	3-1
Introduction . . . . .	3-1
Fire Regimes . . . . .	3-1
Vegetation . . . . .	3-5
Potential Vegetation Types . . . . .	3-5
Threatened And Endangered Plant Species . . . . .	3-9
US Forest Service And BLM Sensitive Species . . . . .	3-10
Noxious Weeds And Other Exotic Plant Species . . . . .	3-18
Research Natural Areas . . . . .	3-27
Wildlife . . . . .	3-28
Scope Of The Analysis . . . . .	3-28
Federally Listed Or Proposed Species . . . . .	3-28

Us Forest Service Sensitive Species . . . . .	3-33
Forest Plan Management Indicator Species . . . . .	3-45
Fisheries . . . . .	3-52
Scope Of The Analysis . . . . .	3-52
Desired Condition . . . . .	3-53
Existing Condition. . . . .	3-57
Water Quality . . . . .	3-71
Introduction . . . . .	3-71
Payette National Forest . . . . .	3-71
Desired Condition . . . . .	3-73
Past Events That Have Affected The Current Condition . . . . .	3-74
Current Conditions . . . . .	3-76
Nez Perce National Forest . . . . .	3-82
Current Condition . . . . .	3-86
Salmon Challis National Forest. . . . .	3-99
Past Events That Have Affected The Current Condition. . . . .	3-100
Current Conditions . . . . .	3-102
Soils. . . . .	3-112
Scope Of The Analysis . . . . .	3-112
Current Condition . . . . .	3-113
Air Quality. . . . .	3-117
Affected Environment. . . . .	3-117
Social Values/Recreation. . . . .	3-119
Scope Of The Analysis . . . . .	3-119
Physical Setting. . . . .	3-119
Social Setting . . . . .	3-120
Range. . . . .	3-125
Wilderness . . . . .	3-127
Existing Condition. . . . .	3-129
Cultural Resources . . . . .	3-131
Maps . . . . .	3-135
 CHAPTER FOUR - <i>Environmental Consequences.</i> . . . . .	 4-1
Effects Of Alternatives On Area Fire Regimes . . . . .	4-2
Fire Management Economics . . . . .	4-5
Vegetation . . . . .	4-6
Effects On Threatened, Endangered, And Sensitive Plants . . . . .	4-6
Noxious Weeds And Other Exotic Plant Species . . . . .	4-16
Research Natural Areas . . . . .	4-20
General Cumulative Effects On Wildlife . . . . .	4-23
Forest Plan Consistency . . . . .	4-23
Irreversible Or Irretrievable Commitment Of Resources . . . . .	4-23
Unavoidable Adverse Impacts. . . . .	4-23
Federally Listed Or Proposed Species. . . . .	4-26
U.S. Forest Service Sensitive Species . . . . .	4-35
Bureau Of Land Management Sensitive Wildlife Species . . . . .	4-53
Forest Plan Management Indicator Species. . . . .	4-66

Fisheries .....	4-81
Direct And Indirect Effects To Fish Habitat .....	4-81
Direct, Indirect, And Cumulative Effects To Listed And Sensitive Fish - All Forests .....	4-97
Water Quality .....	4-102
Direct And Indirect Effects .....	4-102
Direct And Indirect Effects .....	4-126
Soils .....	4-156
Direct And Indirect Effects .....	4-160
Air Quality .....	4-166
Social Values/Recreation .....	4-171
Physical Setting .....	4-171
Social Setting .....	4-171
Range .....	4-175
Wilderness .....	4-179
Cultural Resources .....	4-182
Map .....	4-185
CHAPTER FIVE .....	5-1
Contributors .....	5-1
Glossary .....	5-5
Acronyms .....	5-21
References .....	5-25
Recipients of the DEIS .....	5-41
Appendix A .....	A-1
Appendix B .....	B-1
Appendix C .....	C-1
Appendix D .....	D-1
Appendix E .....	E-1
Appendix F .....	F-1
Appendix G .....	G-1
Appendix H .....	H-1
Index .....	I-1

## List of Tables

Table 2-1. Comparison Of Alternatives By Issues . . . . .	2-7
Table 2-2. Comparison Of Alternatives To The Purpose And Need. . . . .	2-8
Table 3 - 1. Acres Of Each PVT In The Planning Area. . . . .	3-6
Table 3-2 Threatened, Endangered, And Sensitive Plants. . . . .	3-14
Table 3-3 Index Of Habitat Susceptibility . . . . .	3-24
Table 3 - 4. Potential Vegetation Type Susceptibility Ratings. . . . .	3-25
Table 3 - 5. Acres Of Extreme Risk Of Noxious Weed Spread. . . . .	3-26
Table 3 - 7. Forest Fishery/Water Quality Objectives . . . . .	3-54
Table 3 - 8. Management Indicator Species And Fish Habitat Objectives . . . . .	3-55
Table 3 - 9. Hierarchy Of Watersheds Analyzed . . . . .	3-71
Table 3 - 10 Grazing Allotments In Little Salmon Section. . . . .	3-76
Table 3 - 11. Stream Order And BOISED Results For Wilderness Section . . . . .	3-77
Table 3 - 12. Watershed Condition Indicators . . . . .	3-78
Table 3 - 13. Stream Order And BOISED Results For Middle Salmon Section . . . . .	3-78
Table 3 - 14. Watershed Condition Indicators For Middle Salmon Section. . . . .	3-79
Table 3 - 15. Stream Order And BOISED Results For Lower Salmon Section. . . . .	3-79
Table 3 - 16. Watershed Condition Indicators For Lower Salmon Section . . . . .	3-80
Table 3 - 17. Stream Order And BOISED Results For Little Salmon Section. . . . .	3-80
Table 3 - 18. Watershed Condition Indicators For Little Salmon Section. . . . .	3-81
Table 3 -19. Watershed Condition Indicators . . . . .	3-86
Table 3 - 20. Forest Plan Fish/Water Quality Objectives. . . . .	3-87
Table 3 -21. 1995 NEZSED Sediment Yield . . . . .	3-88
Table 3 -22. Watershed Condition Indicators. . . . .	3-89
Table 3 - 23. Forest Plan Fish/Water Quality Objectives . . . . .	3-90
Table 3 - 24. 1995 NEZSED Sediment Yield . . . . .	3-90
Table 3 - 25. Watershed Condition Indicators . . . . .	3-91
Table 3 - 26. Forest Plan Fish/Water Quality Objectives . . . . .	3-91
Table 3 - 27. 1995 NEZSED Sediment Yield . . . . .	3-91
Table 3 - 28. Watershed Condition Indicators. . . . .	3-92
Table 3 - 29. Forest Plan Fish/Water Quality Objectives . . . . .	3-92
Table 3 -30. Forest Plan Fish/Water Quality Objectives . . . . .	3-92
Table 3 - 31. Watershed Condition Indicators. . . . .	3-93
Table 3 - 32. Forest Plan Fish/Water Quality Objectives . . . . .	3-94
Table 3 - 33. 1995 NEZSED Sediment Yield . . . . .	3-94
Table 3 - 34. Watershed Condition Indicators . . . . .	3-95
Table 3 - 35. Forest Plan Fish/Water Quality Objectives . . . . .	3-95
Table 3 - 36. 1998 NEZSED Sediment Yield . . . . .	3-95
Table 3 -37. Watershed Condition Indicators . . . . .	3-96
Table 3 - 38. Forest Plan Fish/Water Quality Objectives . . . . .	3-96
Table 3 - 39. 1995 NEZSED Sediment Yield . . . . .	3-97
Table 3 - 40. Watershed Condition Indicators. . . . .	3-97
Table 3 - 41. Forest Plan Fish/Water Quality Objectives . . . . .	3-98
Table 3 - 42. 1998 NEZSED Sediment Yield . . . . .	3-98
Table 3 - 43. Watershed Condition Indicators. . . . .	3-99
Table 3 - 44. Watershed Condition Indicators. . . . .	3-102
Table 3 - 45. Watershed Condition Indicators . . . . .	3-103

Table 3 - 46.	Watershed Condition Indicators . . . . .	3-103
Table 3 - 47.	Watershed Condition Indicators . . . . .	3-104
Table 3 - 48.	Watershed Condition Indicators . . . . .	3-104
Table 3 - 49.	Watershed Condition Indicators . . . . .	3-104
Table 3 - 50.	Watershed Condition Indicators . . . . .	3-105
Table 3 - 51.	Forest Plan Fish/Water Quality Objectives . . . . .	3-106
Table 3 - 52.	1992-1998 Salmon - Challis National Forest Core Sampling Results . . .	3-106
Table 3 - 53.	1984 - 1992 Salmon - Challis National Forest Core Sampling Results. . .	3-107
Table 3 - 54.	1992-1998 Salmon - Challis National Forest Core Sampling Results. . .	3-108
Table 3 - 55.	1992 - 1998 Salmon-Challis National Forest Core Sampling Results . . .	3-108
Table 3 - 56.	1992-1998 Salmon-Challis National Forest Core Sampling Results. . . . .	3-109
Table 3 - 57.	1992-1998 Salmon-Challis National Forest Core Sampling Results. . . . .	3-109
Table 3 - 58.	1992-1998 Salmon-Challis National Forest Core Sampling Results. . . . .	3-110
Table 3 - 59.	1995 NEZSED Sediment Yield. . . . .	3-111
Table 3 - 60.	Visitor Use Days During Calendar Year 1998. . . . .	3-121
Table 3 - 61.	Steelhead Angler Days On The Salmon River . . . . .	3-121
Table 3 - 62.	Structures And Improvements Located Within Proposed Burn Units. . . . .	3-122
Table 3 - 63.	1997 Use Figures: Elk And Deer Hunting . . . . .	3-124
Table 3 - 64.	Proposed Burn Units Within Active Grazing Allotments. . . . .	3-127
Table 4 - 1.	Reasonably Foreseeable Future Actions Within Proposed Burn Areas. . . . .	4-1
Table 4 - 2.	Burn Intensity Predictions. . . . .	4-7
Table 4 - 3.	Predicted Relative Positive/Negative Effects On Wildlife Species . . . . .	4-24
Table 4 - 4.	Alternative A - No Action. . . . .	4-104
Table 4 - 5.	ECA Results For Salmon River Watersheds . . . . .	4-105
Table 4 - 6.	Alternative E . . . . .	4-106
Table 4 - 7.	John Day Creek ECA Acres And Percents For Alternative B, C And D . . .	4-108
Table 4 - 8.	Alternative E. . . . .	4-108
Table 4 - 9.	Slate Creek ECA Percentages And Acres For Alternative B, C, And D. . . . .	4-109
Table 4 - 10.	Alternative E. . . . .	4-109
Table 4 - 11.	Lower Salmon West ECA Acres For Alternative B, C And D . . . . .	4-110
Table 4 - 12.	Race Creek ECA Acres And Percents For Alternative B, C, And D . . . . .	4-111
Table 4 - 13.	Alternative E. . . . .	4-111
Table 4 - 14.	ECA Acres And Percents For Alternative B, C, And D. . . . .	4-112
Table 4 - 15.	ECA, Alternative E. . . . .	4-112
Table 4 - 16.	Squaw And Papoose ECA Acres For Alternative B, C, And D . . . . .	4-112
Table 4 - 17.	ECA, Alternative E. . . . .	4-113
Table 4 - 18.	Mallard ECA Acres And Percents For Alternative B, C, And D . . . . .	4-113
Table 4 - 19.	ECA, Alternative E. . . . .	4-114
Table 4 - 20.	Water Yield Analysis (ECA) . . . . .	4-115
Table 4 - 21.	Percent Over Natural Sediment For Alternative B, C, And D . . . . .	4-127
Table 4 - 22.	Percent Over Natural Sediment For Alternative E . . . . .	4-128
Table 4 - 23.	Percent Over Natural Sediment For Alternative B, C, And D . . . . .	4-130
Table 4 - 24.	Percent Over Natural Sediment For Alternative E . . . . .	4-131
Table 4 - 25.	Percent Over Natural Sediment For Alternative B, C, And D . . . . .	4-131
Table 4 - 26.	Percent Over Natural Sediment For Alternative E . . . . .	4-132
Table 4 - 27.	Percent Over Natural Sediment For Alternative B, C, And D . . . . .	4-132
Table 4 - 28.	Percent Over Natural Sediment For Alternatives B, C, And D . . . . .	4-133
Table 4 - 29.	Percent Over Natural Sediment For Alternative E . . . . .	4-134
Table 4 - 30.	Percent Over Natural Sediment For Alternative B, C, And D . . . . .	4-134
Table 4 - 31.	Percent Over Natural Sediment For Alternative E . . . . .	4-135

Table 4 - 32. Percent Over Natural Sediment For Alternative B, C, And D . . . . .	4-135
Table 4 - 33. Percent Over Natural Sediment For Alternative E . . . . .	4-136
Table 4 - 34. Percent Over Natural Sediment For Alternatives B, C, And D . . . . .	4-136
Table 4 - 35. Percent Over Natural Sediment For Alternatives E - From 1998 - 2007 .	4-137
Table 4 - 36. Effects Summary Table For The Payette And The Nez Perce Forest . . .	4-152
Table 4 - 37. Salmon-Challis Effects Table (In Appendix F). . . . .	4-152
Table 4 - 38. Total Sediment For Alternative B For The Main Salmon River . . . . .	4-155
Table 4 - 39. Soil Erosion Rate For The First Year Following Burning. . . . .	4-160
Table 4 - 40. Soil Interpretations . . . . .	4-162
Table 4 - 41. Acres Predicted To Burn Moderately . . . . .	4-164
Table 4 - 42. Emissions By Alternative, Based On 5 & 10 Year Implementation . . . .	4-168
Table 4 - 43. National Ambient Air Quality Standards. . . . .	4-170
Table 4 - 44. Suggested Air Quality Threshold Levels . . . . .	4-170
Table 4 - 45. Active Allotment Acres Affected By Each Alternative. . . . .	4-178

## List of Figures

Figure 3-1 Historic vs. Current Fire Regimes . . . . .	3-4
Figure 3 - 2. Mean Annual Burned Acres, Salmon River Canyon Project Area . . . . .	3-5
Figure 4 - 1. Current vs. Historical Fire Regimes in Salmon River Canyon Burn Units. .	4-2
Figure 4 - 2. Estimated Fire Regimes (2009) in Salmon River Canyon Burn Units, . . . .	4-3
Figure 4 - 4. FARSITE Fire Simulation. . . . .	4-5

## List of Maps

Maps Following Page . . . . .	1-13
-------------------------------	------

- 1-1 Planning Area Vicinity*
- 1-2 Proposed Action*
- 1-3 Forest Vegetation Outside HRV*
- 1-4 Subwatersheds at Risk to Stand-Replacing Wildfire*

Maps Following Page . . . . .	2-13
-------------------------------	------

- 2-1 Alternative B*
- 2-2 Alternative C*
- 2-3 Alternative D*
- 2-4 Alternative E*

Maps Following Page . . . . .	3-133
-------------------------------	-------

- 3-1 Fire History Study Locations*
- 3-2 Historic Fire Regimes*
- 3-3 Current Fire Regimes*
- 3-4 Potential Vegetation*
- 3-5 Existing Vegetation*
- 3-6 Hydrologic Units And Streams*

Maps Following Page . . . . .	4-184
-------------------------------	-------

- 4-1 Landtype Associations*